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NOTICE INVITING TENDER(NIT)

**Category of Tender: TWO BID
(PRICED + UN - PRICED)**

**SUB: Straight Tube Butt Welding Station
with 24 M Tube Handling System**

Our Ref: **MM/2/10/2095/CAP/W-463/5288**

DATE: 06.01.2012

Sealed quotations in duplicate are invited from suppliers on **or before 15.02.2012 SUPERSCRIBING OUR REFERENCE AND CATEGORY OF TENDER** on the cover, for supply of the under mentioned stores within the above due date, otherwise send **REGRET LETTER**, strictly subject to the Terms & Conditions attached herewith.
LATE TENDERS ARE NOT ACCEPTABLE.

ITEM No.	DESCRIPTION / SPECN. / SIZE	QTY
1.	Straight Tube Butt Welding Station with 24 M Tube Handling System	1 No 's
	Encl: 1. Qualifying Criteria 4 pages 2. Technical Specifications 28 Pages 3. Annexure-1 1 pages 4. Annexure-2 1 pages 5. General Terms/ commercial terms and conditions (INCLUDING CHECK LIST) 9 pages	

For BHARAT HEAVY PLATE & VESSELS LIMITED,

For Dy. GENERAL MANAGER (MM)

REAL TIME RADIOSCOPIC EXAMINATION OF WELDS DONE IN STBW

BHPV, VISAKHAPATNAM - ACCEPTANCE STANDARD

1. SCOPE:

- 1.1. All joints welded in Straight Tube Butt Welding Machines are subject to Real Time Radiographic Examination through a state of art Radiography and Image processing equipment positioned in the out feed side of STBW Machine.
- 1.2. Radioscopic Images of Joints welded in the machine are to be free from defects as outlined in the clauses below.

2. ACCEPTANCE CRITERIA:

2.1. INTERNAL DEFECTS

- 2.1.1. Cracks, incomplete penetration, incomplete fusion and burn-through, are not acceptable.
- 2.1.2. Pin holes and Porosity (entrapped Gas holes) are not acceptable.

2.2. SURFACE DEFECTS

The following weld conditions as revealed in the radioscopic images are not acceptable.

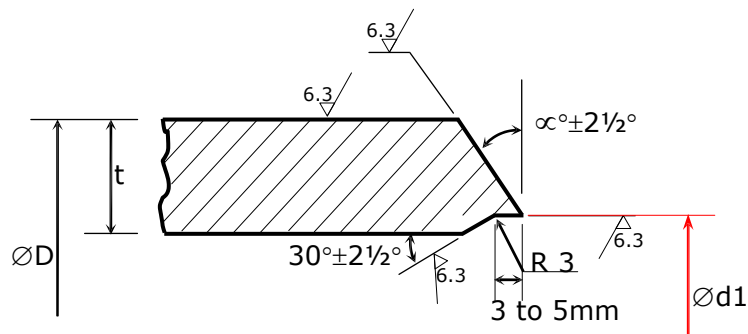
- 2.2.1. Undercuts exceeding 0.4 mm.
- 2.2.2. Mismatch/ misalignment in excess of 1.5 mm.
- 2.2.3. Weld outside reinforcement, less than 1.5 mm and exceeding 3.2 mm.
- 2.2.4. Weld Inside reinforcement (Excess penetration) exceeding 1.5mm.
(See Note below)
- 2.2.5. Depressions on the weld surface, entrapping non metallic inclusions.
- 2.2.6. A crater at the termination of the weld.
- 2.2.7. Abrupt weld surface ridges and valleys.
- 2.2.8. Non melted electrode wire on the inside of the weld (Wire Stub).

Note:

It is desirable to have a uniform inside reinforcement/penetration at the root not exceeding 1.50 mm in height all around the circumference that merges without any start-stop gap or irregularity.

TUBE EDGE PREPARATION DETAIL FOR STBW

D : Tube OD
t : Tube thickness
d1 : Bore ID



- | | |
|-----------------------------------|--------------------------------|
| a. Grade C, SA213 T11, T22 | - α - 45 ⁰ |
| b. SA213 T91 and Stainless Steel | - α - 37.5 ⁰ |
| c. Combination of T91/SS with T22 | - α - 37.5 ⁰ |

All dimensions are in mm
BHPV, VISAKHAPATNAM

**STRAIGHT TUBE BUTT WELDING STATION WITH 24M TUBE HANDLING SYSTEM
(QUALIFICATION CRITERIA – PART A)**

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QUALIFYING CRITERIA FOR THE SUPPLY OF

Straight Tube Butt Welding Station with 24m Tube Handling System

SECTION – I

The BIDDER is expected to give complete details against each clause in the table given below, with additional sheets those may be attached (giving clear reference number) to furnish and cover the requisite details / documents.

Sl. No.	PARTICULARS	BIDDER's RESPONSE
1	BIDDER to provide the Profile of their Company	
2	The Bidder (OEM) shall have a minimum of TEN Years of Continuous Experience in the field of Design, Manufacture and Supply of STBW machines.	
3	List of customers to whom STBW machines were supplied, installed and commissioned till date, highlighting the customers who are in the field of Power Utility Boilers manufacturing (of High Pressure Ratings). The sizes of machines supplied may be furnished.	
4	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India.	
5	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

**STRAIGHT TUBE BUTT WELDING STATION WITH 24M TUBE HANDLING SYSTEM
(QUALIFICATION CRITERIA – PART A)**

SECTION – II

The BIDDER has to compulsorily meet the following requirements to get qualified for submitting an offer for the Straight Tube Butt Welding Station:

Sl. No.	REQUIREMENTS	BIDDER'S RESPONSE
1	Only those Bidders (OEMs) should quote, who have supplied and commissioned at least One Straight Tube Butt Welding Machine in the past Ten years (on the date of opening of Tender) and such machine should presently be working satisfactorily for more than one year after commissioning (on the date of opening of Tender),. However, if such equipment has been supplied to BHPV / BHEL, then the same must be currently working satisfactorily for not less than six months (as on date of Tender Opening) from the date of commissioning and acceptance.	
	The Bidder should submit following information where similar machine has been supplied:	
1.1	Name and postal address of the customer or company where similar equipment is installed.	
1.2	Name and designation of the contact person of the customer.	
1.3	Phone, FAX no and email address of the contact person of the customer.	
1.4	Month and Year of commissioning of the equipment.	
1.5	Application for which the equipment is supplied	
2	Along with the Technical offer, the Bidder should submit the <u>Performance certificate from the customer for the satisfactory performance of the equipment supplied as per clause 1.0 above.</u> (For obtaining the Performance certificate, a suggestive format is provided in SECTION – IV)	
3	Offers of only those Bidders who meet the above Qualifying Criteria will be considered for further evaluation.	
4	BHPV reserves the right to verify the information provided by Bidder. In case the information provided by Bidder is found to be false/ incorrect, the offer shall be rejected.	
5	DELIVERY - The bidder shall quote the best possible delivery. However the delivery period shall not exceed 12 months from the date of Purchase Order. A grace period of 2 months in addition is provided. The additional grace period will attract loading, which is explained in the commercial terms of the enquiry. The delivery period is reckoned from the date of purchase order to date of dispatch from the Bidder works.	

**STRAIGHT TUBE BUTT WELDING STATION WITH 24M TUBE HANDLING SYSTEM
(QUALIFICATION CRITERIA – PART A)**

SECTION – III

The BIDDER has to comply with the following, for accepting the Technical Offer for scrutiny by the Purchaser:

Sl. No.	REQUIREMENTS	BIDDER's COMPLIANCE
1	The BIDDER shall submit the offer in TWO PARTS- Technical [with PART A & PART B] & Commercial and Price Bid.	
2	The offer shall contain a comparative statement of Technical Specifications given by BHPV and the offered details submitted by the Bidder, against each clause. Merely stating 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words wherever 'Bidder to Specify' details in the technical comparative statement may lead to disqualification of the Technical Offer.	
3	The Technical Offer shall be supported by product Catalogues & Data Sheets and also technical details of Bought-Out-Items with copies of Product Catalogue to the extent possible.	
4	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation of the inclusion of all the accessories, toolings, attachments, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.	
5	BIDDER has to indicate the Country of Origin for the supply of equipment.	

**STRAIGHT TUBE BUTT WELDING STATION WITH 24M TUBE HANDLING SYSTEM
(QUALIFICATION CRITERIA – PART A)**

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PERFORMANCE CERTIFICATE
(On Customer's Letter Head)

1. Supplier of the machine :
2. Make & Model of the Equipment :
3. Month & Year of Commissioning :
4. Application for which machine is used :
5. Sizes of Jobs Performed in the machine :
6. Performance of the Machine : Satisfactory / Not Satisfactory
(Strike off whichever is not applicable)
7. After Sales Service : Satisfactory / Not Satisfactory
8. Any other remarks :
9. Contact Details :
Name of the Contact Person :
Phone No. :
Fax No. :
E-mail ID :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

Sl. No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S CONFIRMATION
1.0	APPLICATION	a) This machine is meant for butt-welding of straight tubes with edge prepared ends (without tack welding) using <ul style="list-style-type: none"> • Entirely by Pulsed GMAW Welding - (The predominant method) • Pulsed GTAW root welding followed by Pulsed GMAW Welding, • Entirely by Pulsed GTAW. <p align="center">IMPORTANT NOTE:</p> b) The machine is intended for Tube Build-up to 24 metres with 1No. GTAW and 3Nos. GMAW welding station. Scope includes Water Fall Rack, In Feed stand, 24m Tube Out Feed Stand, Pinch rollers etc. c) Welding of tubes of similar or dissimilar materials in steel (like carbon steel to alloy steel, alloy steel to stainless steel etc) d) Welding of tubes of various outer diameters and thicknesses. e) Torches have to be employed, one exclusive for TIG, the other three/four for MIG welding process using three/four types of filler wire for different material combination butt-welds. f) The weld Joints shall meet the quality requirements for soundness in Real time Radiography Tests as per BHPV Standard – Annexure-1	
2.0	JOB DETAILS		
2.1	Nature of Job	Only Seamless Steel Tubes (All are Outer Diameter controlled tubes with a tolerance of maximum 12% on tube wall thickness)	
2.2	Tube Outer Diameters	28.6mm / 31.8mm / 38.1mm / 44.5mm / 47.63 / 51mm / 57mm / 63.5mm / 76.1mm	
2.3	Tube Wall Thickness	3mm to 12.5mm	
2.4	Tube Length (Raw tubes that are to be joined - In-feed Material)	Minimum - 2 meters & Maximum - 15 meters Note: a) Small tubes known as inserts of length 80mm / 110mm with straight gripping length of 30mm have to be welded to the longer tubes. The machine to be suitable for gripping these inserts in the chucks and weld them to the longer tubes. b) Tube lengths less than 2 meters will be loaded manually. Tube lengths greater than 2 meters have to be fed automatically into the machine.	

Sl. No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
2.5	Tube Material	a. Carbon Steel : SA192, SA210Gr. A1, SA210 Gr.C b. Alloy Steel : SA209 T1, SA213 T11, SA213 T22, SA213 T91, SA213 T23, SA213 T92 c. Stainless Steel: SA 213 TP304H, SA 213 TP321H, SA 213 TP347H	
2.6	Tube End Edge Preparation Style and Weld Groove Design	a. Grade C, SA213 T11, T22 - 45 degree chamfer b. SA213 T91and Stainless Steel - 37.5 degree chamfer c. Combination of T91/SS with T22 - 37.5 degree chamfer [Refer to ANNEXURE – 2 for Edge Preparation details]	
2.7	No root gap	Tubes to be welded without root gap for GTAW & GMAW. GMAW process will be adopted pre-dominantly from root pass to final pass.	
3.0	PRODUCTIVITY		
3.1	No.of Joints / Shift of 8 Hours	Number of radiography quality weld joints expected per shift of 8 hours, for following tubes of 10 or 12m length is Bidder has to confirm and to be proved out. 1. 100 joints / shift of OD 51mm x Th. 5.6mm / SA 210 Gr. C with 0.8mm ER70S-A1 wire by Pulsed GMAW process as well as GTAW process, wherever applicable. 2. 80 joints / shift of OD 54mm x Th. 4mm / SA213 T91 with 0.8mm ER90S-B9 wire by Pulsed GMAW process. The joints are to be pre-heated before welding as well as GTAW process, wherever applicable.	
4.0	WELDING MACHINE CONFIGURATION		
4.1	Tube Revolution during Butt Welding Operation	0.1 RPM to 6.0 RPM (Synchronized rotation of the two tube clamping chucks are to be ensured)	
4.2	Accuracy of speed of rotation of Job Holding Chuck	Bidder to Specify the accuracy with minimum and maximum error (in terms of percentage of the set speed with reference to actual)	
4.3	Tube Rotation drive	AC Servo Drive. Bidder to Specify the make and rating.	
4.4	Tube Clamping	a. Two sets of 3-Jaw Self Centering Chucks with actuating cylinders. Bidder to Specify the no. of sets of jaws for the range of tube diameters mentioned above.	

Sl. No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
4.4 (Contd.)	Tube Clamping	b. Jaw clamping area must be serrated surface, for better electrical contact and grip over tubes coated with Rust preventive oil.	
		c. One Chuck shall be of fixed type and other shall be movable, to suit the tube lengths with respect weld joint location.	
		d. Bidder to Specify the type of clamping (Hydraulic/Pneumatic/Electrical)	
		e. The movable chuck shall exert a constant pressure on the joint during welding in order to get uniform root fusion and penetration to the tune of 1.50 mm in height all around the circumference that merges without any start – stop gap or irregularity.	
4.5	Machine Lifting Stroke	30 mm or more. Bidder to Specify the stroke.	
4.6	Machine Lifting Mechanism	By motorized gear box with stay foot. Bidder to Confirm.	
4.7	Welding Return Current Collector	Bidder to give Technical Details on the weld current return rings on each chuck. Bidder to provide a sketch.	
4.8	Stopper	Bidder to give Technical Details for stopping the tubes for joint alignment with torch. The stopper to be sturdy enough to take the impact load of the tubes hitting it. The stopper to be positioned behind the chuck and preferably lift upwards so that the bottom side is free for arranging a burner for preheating the joint.	
4.9	Horizontal Travel of Chucks	Bidder to give Technical Details with stroke length (in mm) for movable chuck, after clamping the tube, to butt against the tube in the fixed jaw. The stroke shall be long enough to butt against the tube inserts of 80mm length.	
4.10	Machine Mounted Arc Shield	Large Welding shield glass to form part of the machine fitted on sliding door. The inner side of the welding shield glass facing the welding to be protected against spatter with a plain glass that can be replaced at frequent intervals. Bidder to provide 10 spare plain glasses.	
5.0	WELDING HEAD		
5.1	Number of Weld Head	ONE	

STRAIGHT TUBE BUTT WELDING STATION WITH 24m TUBE HANDLING SYSTEM (TECHNICAL SPECIFICATION – PART B)

Sl.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
5.2	Number of Torches	a. For GTAW Process - 1 No AND b. For Synergic Pulsed GMAW Process - 3 Nos [Preferably all the Torches to be positioned in a single line]	
5.3	Positioning of Weld Head/Torches	a. The Weld head has to be preferably in the centre such that the time taken for moving the selected torch horizontally will be minimum. b. Quick positioning of head for the selected torch to be engaged. c. By Pneumatic or AC Servo System for quick up-down movement with creep speed. d. The time taken by the weld head to move to home position and back to the weld position shall not exceed 5 seconds	
6.0	VERTICAL SLIDE UNIT		
6.1	Type	AC Servo Motorized / Pneumatic – Bidder to Specify	
6.2	Vertical Stroke	Bidder to Specify the stroke of the entire head mounted with all torches.	
6.3	Stroke of each torch	Up/Down stroke of each torch to be Pneumatically operated. Fine adjustment shall be Motorized.	
6.4	Fine Adjustment	Fine adjustment to be provided by Joystick. Bidder to Specify the fine adjustment stroke.	
6.5	Height Adjustment	The position of the torch tip for different diameters to be adjustable such that the torch will not collide with the tube.	
6.6	Interlock for collision	Fool proof arrangement to be provided such that the torch shall not descend over the chuck and collide.	
6.7	Vertical guide ways	Vertical individual Torch sliding guide-ways shall be of steel or LM guide-ways. Aluminium or any other metal is not acceptable.	
7.0	HORIZONTAL SLIDE UNIT		
7.1	Type	AC Servo Motorized / Pneumatic – Bidder to Specify	
7.2	Movement of Torches	Quick positioning of head for the selected torch to be engaged.	
7.3	Horizontal Stroke	Bidder to Specify the stroke of the entire head mounted with all torches.	

SI.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
7.4	Fine Adjustment	Horizontal Fine adjustment (Left/Right) to be provided in the same Joystick provided for Vertical fine adjustment. Bidder to Specify the fine adjustment stroke.	
7.5	Horizontal guide ways	Horizontal Torch sliding guide-ways shall be of steel or LM guide-ways. Aluminium or any other metal is not acceptable. Ball screws to be used in case of motorized movement.	
7.6	Oscillation Function	Bidder to give Technical Details	
7.6.1	(i) Oscillation frequency	6 to 200 cycles / minute	
7.6.2	(ii) Oscillation Width	0 to 40 mm (20 mm on either side of the centre of joint)	
7.6.3	(iii) Dwell Time at Both Ends (Separately Adjustable)	0 to 9.9 sec	
8.0	POWER SUPPLY for PULSED GTAW		
8.1	Type	Inverter Controlled (IGBT Based) - DC Welding Power Supply for Pulsed TIG	
8.2	Make	OTC / DAIHEN CORPORATION, Japan	
8.3	Model	Bidder to Specify	
8.4	Current Rating	350 A or more	
8.5	Duty Cycle	60% or more	
8.6	H F Unit for TIG Welding	Bidder to give Technical Details	
9.0	POWER SUPPLY for SYNERGIC PULSED GMAW		
9.1	Type	Inverter Controlled (IGBT Based) Welding Power Source for Synergic Pulsed GMAW	
9.2	Make	OTC / DAIHEN CORPORATION, Japan	
9.3	Process	Synergic Pulsed GMAW preprogrammed for 0.80 mm Wire of CS, AS & SS with gas shielding [Argon (95-98%) + CO ₂ (5-2%) Mix]	
9.4	Model	Bidder to Specify	
9.5	Rating	a. Current : 350 A or more b. Voltage : 15-36 V	
9.6	Duty Cycle	60% or more	

STRAIGHT TUBE BUTT WELDING STATION WITH 24m TUBE HANDLING SYSTEM (TECHNICAL SPECIFICATION – PART B)

SI.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
10.0	GTAW WIRE (COLD WIRE) FEEDER		
10.1	Type	Bidder to Specify type & rating	
10.2	Make	Bidder to Specify	
10.3	Model	Bidder to Specify	
10.4	Wire size	0.8 mm	
10.5	Wire Feed Speed	0 to 2 m/min (Variable)	
10.6	Feeder Motor Capacity	Bidder to Specify	
10.7	Weight of Wire Spool	Suitable for loading 25kg Wire Spools.	Bidder to Confirm
10.8	Scope of Supply	Bidder to Confirm supply of complete unit with cables, gas hoses, end connectors & protective sheath	
11.0	GMAW WIRE FEEDER		
11.1	Type	Bidder to Specify type & rating	
11.2	Make	Bidder to Specify	
11.3	Model	Bidder to Specify	
11.4	Wire size	0.8 mm	
11.5	Drive	4-Roll Drive (Rollers to be suitable for 0.8mm wire)	
11.6	Wire Feed Speed	8 m/min or more (variable from 0 to maximum)	
11.7	Feeder Motor Capacity	Bidder to Specify	
11.8	Weight of Wire Spool	Suitable for loading 25kg Wire Spools. Bidder to Confirm	
11.9	Scope of Supply	Bidder to Confirm supply of complete unit with cables, gas hoses, end connectors & protective sheath and Feed Rolls for 0.80 mm.	
12.0	GTAW WELDING TORCH		
12.1	Type	Water Cooled	
12.2	Make	Binzel / Weldcraft / Tokin	
12.3	Model	Bidder to Specify	
12.4	Rating	400 A or more @ 100% Duty Cycle	
12.5	AVC Function for TIG Welding	Bidder to furnish Technical Details	
12.6	Tungsten Electrode Size	Diameter : 2.0 / 2.4 / 3.2 mm	

STRAIGHT TUBE BUTT WELDING STATION WITH 24m TUBE HANDLING SYSTEM (TECHNICAL SPECIFICATION – PART B)

Sl.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
13.0	GMAW WELDING TORCH		
13.1	Type	Water Cooled	
13.2	Make	Binzel / Bernard / Tokin	
13.3	Model	Bidder to Specify	
13.4	Rating	450 A or more @ 100% Duty Cycle	
13.5	Wire size	0.8 mm - Fitted with Accessories for 0.80 mm steel wire.	
14.0	TORCH ACCESSORIES		
14.1	Torch cable Length	Welding cable size and length to be carefully selected in order to avoid any problem of wire feeding during, before or after the welding process and to nullify problems like early failure of wire liner, wire getting struck inside liners etc. Bidder to Confirm	
15.0	WATER CHILLER UNIT FOR GTAW & GMAW TORCHES		
15.1	Bidder to Specify the Design Parameters	a. Type – Refrigerant type water chiller	
		b. Water Chiller Cooling Capacity (in Tons of refrigeration)	
		c. Tank Capacity – 5 Litres or more	
		d. Flow rate and pressure (in litres/min and psi or kg/cm ²)	
		e. Type of Coolant – to ensure no scale/sediment formation	
		f. Bidder to Specify the number of Water chillers provided	
15.2	Operating Features	Cooling water flow sensor & interlocks to ensure fool-proof flow of water. Welding should stop automatically incase there is any interruption in cooling water flow.	
16.0	GAS MIXING UNIT		
16.1	Make and Model	Make: Preferably Gentec. Bidder to Specify the make and model quoted.	
16.2	Gases to be mixed	Argon and CO ₂	
16.3	Mixing Ratio	Argon : 95 - 98% CO ₂ : 5 - 2%	

Sl. No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
16.4	Operating Features	Bidder to Specify : a) Type of Mixing Unit & its Accuracy b) Flow Rate (adjustable) for Argon & CO ₂ c) Mixed Gas Flow Rate d) Inlet Pressure e) Outlet Pressure	
16.5	Scope of Supply	Scope of Supply shall include the following: a) Gas Mixing Unit, b) Gas Flow Meters, c) Regulators, d) CO ₂ Heaters, e) Gas Solenoid Valves, f) Gas Flow Sensors and g) Interlocks to ensure fool-proof flow of gas. h) Gas Cups/Nozzles, i) Contact tips for 0.80 mm wire, j) Tip Adapters & Ferrules	
17.0	CONTROL SYSTEM		
17.1	Type	Industrial PC based PLC. Bidder to Confirm.	
17.2	Make	Bidder to Specify the Make of the PLC Control System. Preferred make – Fanuc / Siemens / Mitsubishi	
17.3	Model	Model (suitable and latest version, as available at the time of purchase order placement, shall be supplied).	
17.4	HMI / MDI	Touch Screen Panel. Bidder to Specify the Make and Model with the standard size of panel.	
17.5	Communication	Preferably through Profibus. Bidder to Specify.	
17.6	Memory	Sufficient Memory to store and recall programmed data of minimum 200 programs.	

Sl. No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
17.7	Technical Features	Control should include all interlocks, manual, semi auto and auto.	
17.8	Controls / Meters	All ammeters, voltmeters, gas flow meters shall be located near the operator control station	
17.9	All controls	All controls for the In-Feed & Out-Feed conveyors, hydraulic/pneumatic unit & other peripheral units should be available the operator control station.	
17.10	Laptop	Latest version Laptop with pre-loaded software for PLC for maintenance to be supplied with the machines – 1 No	
17.11	Conveyor controls	In-feed and out-feed conveyors, Tube kick off from storage rack / Water fall rack controls shall be delinked from welding program controls. Operator must be able to independently control the movements with separate set of switches on the operator control panel / separate controller in case of water fall rack.	
17.12	Programming design	a) A database to be provided to store programs identifiable by unique number for each weld joint of different combinations of materials / tube sizes. b) Operator has to select only the program number, which he chooses to activate and recall the program from the database, for welding a particular joint and the torch number with which the operator intends to weld, for a particular sequence of welding to build up the tube length. c) For welding a joint with new combination, programming of the parameters shall be done with a unique number and stored in the database. d) Provision to correct the original program whenever fine tuning of parameters are done to improve the quality of the joint. e) Display of all critical weld parameters – programmed and actual real time data on the screen is essential. f) Fine tuning of critical weld parameters during welding under progress to be made possible.	

SI.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
17.13	Pre-heating cycle / To observe weld	Provision for rotating the tube before welding for pre- heating and one rotation after welding for visual check of welding. This may be programmable.	
17.14	Programming features	a) Torch Selection – Programmable Same torch may be selected for different joints with different programs. Similarly different torches may be selected for different joints. b) Switch over from TIG to MIG should be possible c) Pre-heating by TIG and subsequent welding by MIG to be possible	
18.0	FAULT DIAGNOSTIC SYSTEM		
18.1	Fault diagnostic system	Fault diagnostic system should be provided to show the faults on the display and detailed cause, and remedy for the faults related to mechanical and electrical maintenance.	
18.2	Help guide	Help guide should be provided to use both diagnostic systems. Bidder to Confirm	
19.0	GTAW - Welding Programmable Data (COMMON to All passes)		
19.1	TIG Welding facility will be used for welding and also for pre-heating.	Bidder to Confirm	
19.2	Program Number	Bidder to furnish range	
19.3	Gas Pre-Flow & Post-Flow Time	Bidder to Specify	
19.4	Initial Current	Bidder to Specify	
19.5	Initial Current Time	Bidder to Specify	
19.6	Current Up-Slope & Down-Slope Time	Bidder to Specify	
19.7	Tube Revolution Start & Stop Delay Time	Bidder to Specify	
19.8	Wire Feed Start & Stop Delay Time	Bidder to Specify	
19.9	AVC Delay Time	Bidder to Specify	
19.10	Oscillation Delay/Dwell Time at both ends independently adjustable.	Bidder to Specify	
19.11	Crater Current	Bidder to Specify	
19.12	Crater Current Time	Bidder to Specify	

SI.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
20.0	GTAW Welding Programmable Data (For EACH PASS)		
20.1	Technical Details i. Pass Number range ii. Pulse Current iii. Pulse Duration iv. Base Current v. Base Duration vi. AVC vii. Wire Feed Pulse Speed viii. Wire Feed Base Speed	Bidder to furnish details	
20.2	Tube Revolution Speed	Bidder to Specify	
20.3	Oscillation Width	Bidder to Specify	
20.4	Oscillation Speed	Bidder to Specify	
20.5	Oscillation Dwell Time on both ends (Independently adjustable)	Bidder to Specify	
20.6	Overlap Angle - Variable and programmable	Bidder to Specify	
20.7	Overlap Speed – Variable and programmable	Bidder to Specify	
20.8	Torch Shift per revolution of weld	Bidder to Specify	
20.9	Torch shift speed	Bidder to Specify	
21.0	GTAW Fine Adjustment of Welding Parameters (DURING WELDING)		
21.1	Fine Adjustment of Torch centering / Vertical position / Parameters while welding is in progress	Bidder to Confirm	
21.2	The changes through fine adjustment made during welding may or may not be used to modify programmed data at end of welding cycle.	Bidder to Confirm	
21.3	Fine adjustment must be only by knob or joy stick not by numerical inputs.	Bidder to Confirm	
21.4	TIG Welding parameters	Bidder to furnish range	
21.5	Pulse Current	Bidder to Specify	
21.6	Base Current	Bidder to Specify	
21.7	Tube Revolution Speed	Bidder to Specify	
21.8	Torch Oscillation Width	Bidder to Specify	

SI.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
21.9	Torch Oscillation Speed	Bidder to Specify	
21.10	Provision of display of wire feed rate	Bidder to Confirm	
21.11	Filler Wire Feed Speed	Bidder to Specify	
22.0	GMAW Welding Programmable data (COMMON for all passes)		
22.1	Program Number	Bidder to furnish range	
22.2	Gas Pre-Flow & Post-Flow Time	Bidder to Specify	
22.3	Initial Current	Bidder to Specify	
22.4	Initial Current Time	Bidder to Specify	
22.5	Current Up-Slope & Down-Slope Time	Bidder to Specify	
22.6	Initial Voltage	Bidder to Specify	
22.7	Arc Start Delay Time	Bidder to Specify	
22.8	Tube Revolution Start Delay Time	Bidder to Specify	
22.9	Oscillation start Delay Time	Bidder to Specify	
22.10	Crater Current	Bidder to Specify	
22.11	Crater Current Time	Bidder to Specify	
22.12	Crater Voltage	Bidder to Specify	
22.13	Burn-Back Control to avoid globule formation on wire tip	Bidder to provide details	
22.14	Synergic MIG welding Program based on wire diameters 0.8 mm for CS/AS/SS.	Bidder to Specify	
22.15	Any other feature required to result in a defect free weld joint as seen in Real Time Radiography test.	Bidder to Specify.	
23.0	GMAW Welding Programmable Data (For each Pass)		
23.1	Pass Number	Bidder to furnish range	
23.2	Welding Pulse Current	Bidder to Specify	
23.3	Welding Voltage	Bidder to Specify	
23.4	Tube Revolution Speed	Bidder to Specify	
23.5	Overlap Angle for each pass –Variable and programmable	Bidder to Specify	
23.6	Overlap speed for each pass –Variable and programmable	Bidder to Specify	
23.7	Oscillation Width	Bidder to Specify	
23.8	Oscillation Speed	Bidder to Specify	

SI.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
23.9	Oscillation Dwell Time on both ends (Independently adjustable)	Bidder to Specify	
23.10	Torch shift for each pass – Variable and adjustable	Bidder to Specify	
23.11	Torch shift speed	Bidder to Specify	
23.12	Crater Pulse Current	Bidder to Specify	
24.0	GMAW Fine Adjustment of Welding Parameters (DURING WELDING)		
24.1	Welding Current	Bidder to Specify	
24.2	Welding Voltage	Bidder to Specify	
24.3	Tube Revolution speed	Bidder to Specify	
24.4	Torch Oscillation Width	Bidder to Specify	
24.5	Torch Oscillation Speed	Bidder to Specify	
TUBE HANDLING SYSTEM			
25.0	In-feed & Out-feed tube conveyors for – 24m		
25.1	Bidder to provide General Arrangement drawing	Bidder to provide	
25.2	In-feed tube conveyor to be suitable for transporting tubes of 2m to 15m lengths.	Bidder to Confirm	
25.3	Out-feed tube conveyor to be suitable for transporting built up tubes of 10m to 24m lengths	Bidder to Confirm	
25.4	Both Infeed and Outfeed conveyors shall have row of idle rollers for transporting tubes. The diameter of rollers shall be 150mm or more. The bearings used shall be of reputed make.	Bidder to Confirm	
25.5	Approximate of working height of tube from shop floor level to be furnished	Bidder to Confirm	
25.6	The structures carrying rollers shall be anchored to the floor with the help of anchoring bolts, secured to the floor by drilling and pouring quick setting cement. No separate foundation is acceptable.	Bidder to Confirm	
25.7	Pinch Roller drive		
25.7.1	Pinch Roller driving mechanism to be deployed for transporting the tube. The structure shall be rigid to handle the loads.	Bidder to Confirm	
25.7.2	The pinch roller drive to be either hydraulically or electrically operated	Bidder to Specify	

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25.7.3	The pinch roller drive unit adjacent to the welding machine on either sides must have four rollers	Bidder to Confirm	
25.7.4	The pinch roller drive farther away from the welding machine may have two rollers. Bidder to choose two or four roller depending on their design	Bidder to Specify	
25.7.5	The axes of pinch rollers shall be vertical to the floor	Bidder to Confirm	
25.7.6	The pinch rollers shall be Teflon lined rollers	Bidder to Confirm	
25.7.7	Adjustable to accommodate the range of tube diameters	Bidder to Specify	
25.7.8	The pinch roller diameter shall be 175mm or more and having width of 80mm or more.	Bidder to Confirm	
25.7.9	The maximum speed of transporting tube shall be 60m/min. The speed shall be adjustable	Bidder to Confirm	
25.7.10	The speed of tube shall be reduced (creep speed) while approaching the stopper, at the centre, to avoid impact loading on the stopper.	Bidder to Confirm	
25.7.11	Bidder to Specify total number of Pinch roller drive units on the in-feed side and out-feed side.	Bidder to Specify	
25.7.12	Pinch roller drive unit shall be anchored to the shop floor as explained under Clause 25.6	Bidder to Confirm	
26.0	Tube storing racks for 24m		
26.1	Raw tubes have to be stacked in normal tube storing racks with free-rolling and kick-off facility.	Bidder to Confirm	
26.2	The minimum length of tube shall be : 2m (for this STBW) The maximum length of tube shall be : 15m	Bidder to Confirm	
26.3	Two different storage racks are required to store two varieties of tubes. The racks can either be stacked type on one side of the In-feed conveyor or Racks facing each other on either side of the In-feed conveyor.	Bidder to Confirm	
26.4	Each storage rack shall have the capacity to hold around 45 tubes of OD 63.5mm spread in single row on the slant rack. The width of slant portion of the rack shall be 3000mm and the straight portion for loading the tube bundle shall be 1500mm. Supporting members in each storage racks shall be lined with Nylon or Teflon for reducing the noise level.	Bidder to Confirm	To confirm with BPN

Sl.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
26.5	The tube from each rack shall be transferred from the deck on to the In-feed conveyor by means of a kick off system. The kick off system shall be operated from the control panel.	Bidder to Confirm	
26.6	The Control buttons / switches for the storage rack shall be arranged on the control desk of the butt welding machine	Bidder to Confirm	
26.7	In-feed and out-feed conveyors, Tube kick off from storage rack controls shall be independent from welding program controls.	Bidder to Confirm	
26.8	The tube storage rack and tube in-feed shall be in line with the tube butt welding machine.	Bidder to Confirm	
26.9	Bidder to Specify whether the system for kick off of tubes is electric / pneumatic / hydraulic.	Bidder to Specify	
26.10	The tube storage rack shall have provisions for easy access (for the maintenance staff) to various mechanisms (hydraulic / electric / pneumatic) mounted in the system for maintenance.	Bidder to Confirm	
26.11	Safety guards and safety interlocks shall be provided.	Bidder to Confirm	
26.12	Tube storage racks shall be anchored to the floor. No Foundation is required.	Bidder to Specify	
27.0	HYDRAULICS		
27.1	The System should be centralized, modular / stacked valve construction having minimum number of pipes / pipe joints and located at suitable location with easy accessibility of components for maintenance.	Bidder to Furnish Details	
27.2	Pumps, valves, accessories etc shall be of Bosch-Rexroth / Vickers (Details to be submitted). The seals used in cylinders shall be of Merkel / Parker / Bushak + Shamban / Hunger / Simrit make.	Bidder to Confirm & furnish details	
27.3	Each pump should have an independent motor. Tandem pumps shall be avoided.	Bidder to Confirm	
27.4	Suitable filtration system should be provided with Duplex / standby filter units. It is preferable to use re-usable type of filter elements in the system. The filter unit shall be of Hydac / Parker / Rexroth. (Details to be submitted).	Bidder to Confirm & furnish details	
27.5	The flexible hoses used in the system shall be of Gates / Aeroquip / Parker.	Bidder to Specify	

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27.6	Failure indication for oil level, temperature, pressure, filter clogging should be provided	Bidder to Confirm & furnish details	
27.7	Automatic shut off provision during hose failures, chiller failure, low oil level etc. Pump unloading feature during idle running to be provided for energy conservation. Details should be submitted.	Bidder to Specify	
27.8	Cooling system of sufficient capacity to maintain complete Hydraulic System at a temperature not exceeding 50 deg C irrespective of the ambient conditions.	Bidder to Confirm & furnish details	
27.9	It should be possible to replace hydraulic elements like valves, manifolds etc without disturbing the associated pipelines. The positioning of hydraulic elements should allow easy maintenance	Bidder to furnish details	
27.10	Maximum Operating Pressure of hydraulic system	Bidder to Specify	
27.11	Main Pump flow in lpm and Motor Power in kW	Bidder to Specify	
27.12	Reservoir capacity (in litres)	Bidder to Specify	
27.13	All oil pipelines shall be of seamless steel and should undergo pickling process.	Bidder to Confirm	
27.14	One hand held minimess pressure gauge of suitable range with minimess hose (1.0 to 1.5m length) to be supplied along with the power pack. Check points to be provided in the system.	Bidder to Confirm	
27.15	All cylinders used in the machine should have standard bore and rod sizes. The piston rod shall be hard chrome plated.	Bidder to furnish details	
27.16	The Power pack should be designed taking into account the energy efficiency (Hi-low pump system, proper unloading during idling, etc.). The motor used for pumps shall be energy efficient ones.	Bidder to furnish details	
27.17	All the pipe / hose end fittings shall be of standard weld nipple with O-ring seating type (DIN 3865 or equivalent). No ferrule joints are to be used in the hydraulic system. All threaded connections shall be of metric sizes.	Bidder to Confirm	
27.18	The oil to be used shall be of standard ISO Viscosity Grades – 32 / 68	Bidder to Specify	
27.19	The maximum pressure of the system should preferably not to exceed 310 bar	Bidder to Specify	
27.20	The control voltages for all the Solenoids of the valves shall be of 24-V DC and all solenoid operated DC valves should have manual over-ride provision and light indicating solenoids.	Bidder to Specify	

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27.21	The pipelines to be painted with standard colors as per the color coding accepted internationally for hydraulic systems.	Bidder to furnish details	
27.22	All hydraulic pipelines, hoses and electrical control cables to be neatly laid out with proper clamps and flexible hose conveyors wherever required.	Bidder to Confirm	
27.23	Suitable leakage oil collection metallic tray to be provided wherever required.	Bidder to Confirm	
27.24	All the components in the hydraulic power pack shall be provided with identification numbers, as per the hydraulic circuit and should be pasted with metallic identification number plates.	Bidder to Confirm	
27.25	Hydraulic oil will be supplied by BHPV during commissioning at BHPV works. Bidder to provide the oil during pre-dispatch inspection.	Bidder to Confirm	
28.0	COOLING SYSTEM		
28.1	Chiller Unit for Cooling of Sub-Systems: Suitable Capacity Refrigerant / Radiator type Chilling Units are to be provided for the cooling of Hydraulic Power Pack Oil etc. Bidder to give Complete Technical Details on these Chilling Units	Bidder to Specify	
28.2	Interlock System for Chilling Units Coolant Flow Suitable flow sensors are to be provided to have an interlock with welding circuit, to avoid failure of flow of cooling medium	Bidder to Confirm	
29.0	LUBRICATION :		
29.1	Machine lubrication: Bidder to furnish details of the type of lubrication provided for all the movable parts in the machine.	Bidder to Confirm	
29.2	All greasing points to be provided at convenient location for the operators to fill grease periodically.	Bidder to Confirm	
29.3	First filling of Lubrication Oil to be supplied by the supplier. Indian equivalent shall be mentioned.	Bidder to Specify	
29.4	First filling of Grease should be supplied by Bidder. Indian equivalent shall be mentioned.	Bidder to Specify	
30.0	PNEUMATIC SYSTEM:		
30.1	The pneumatic operated elements of the machine shall work efficiently with BHPV compressed air supply at a pressure of 3.5 to 4.5 kg/cm ² .	Bidder to Confirm	

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30.2	If higher air pressure is required for efficient operation of the machine, Bidder shall furnish the information for Air Compressor of suitable capacity.	Bidder to Specify	
30.3	Bidder to Specify the total air volume required for efficient operation of the complete machine.	Bidder to Confirm	
30.4	Refrigerated Air Drier to be provided to eliminate moisture content from the compressed air at the designed flow and pressure rating.	Bidder to Confirm	
30.5	BHPV will provide compressed air at only one point near / on the machine. Bidder shall provide suitable filter- regulator-lubrication (FRL) unit and in addition a hand wheel valve at this point	Bidder to Confirm	
30.6	Hydraulic, Pneumatic & Lubricating oil piping should be preferably metallic except places where flexible piping is essential. All the pipes required for the same shall be included in the standard scope of the machine.	Bidder to Confirm	
30.7	Pneumatic components shall be of FESTO / NORGREN make	Bidder to Specify	
31.0	ELECTRICAL & ELECTRONICS SYSTEMS		
31.1	415V with a voltage fluctuation of +/- 10%, 50HZ with a fluctuation of +/-3%, 3 Phase AC (3 wire system without neutral) power supply will be provided by BHPV at a single point near the machine, as per layout recommended by Bidder. All cables, connections, circuit breakers etc. required for connecting BHPV's power supply to the machine shall be in the scope of Bidder.	Bidder to Confirm	
31.2	Tropicalization: All electrical / electronic equipment shall be tropicalized.	Bidder to Confirm	
31.3	Control circuit voltage shall not exceed 24V DC	Bidder to Confirm	
31.4	All electrical components in the cabinets should be mounted on DIN Rail	Bidder to Confirm	
31.5	All electrical and electronic panels including operator's panel should be provided with fluorescent lamps for sufficient illumination and power receptacles of 220Volts, 5/15 Amp AC. All adapters / receptacles should have compatibility with Indian equivalents.	Bidder to Confirm	
31.6	All cables moving with traversing axes should be installed in caterpillar / Drag chain. Additionally, all the cable trays required for laying of cables should be included in the offer.	Bidder to Confirm	

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31.7	Bidder should ensure the proper earthing for the machine and its peripherals.	Bidder to Confirm	
31.8	Cables shall be routed through totally enclosed cable trays. There shall not be cable trenches.	Bidder to Confirm	
31.9	All electrical & electronic control cabinets & panels should be vermin and dust proof. All Electric enclosures shall have IP 54 protection	Bidder to Confirm	
31.10	Motors and drives shall be of Fanuc / Siemens / Allen Bradley / ABB / Indramat / SEW conforming to IS / IEC Standards (Bidder should indicate make and type in the offer)	Bidder to Confirm	
31.11	All electrical items shall be of make SEW / ROCKWELL / Allen Bradley / Telemecanique / Delta.	Bidder to Confirm	
31.12	All the motor control variable frequency drives should have input and out put chokes with brake resistor.	Bidder to Confirm	
31.13	All indication lamps should be provided with LED Indication Lamp.	Bidder to Confirm	
31.14	All components/devices/terminals are to be incorporated with numbered ferrules.	Bidder to Confirm	
31.15	External wiring from / to control panel, control desk, external motors etc shall be by means of screened multi-core cables.	Bidder to Confirm	
31.16	All electrical motors, limit switches etc, on the machine shall be wired using PVC sheathed cable running in conduits and converging to common terminal block.	Bidder to Confirm	
31.17	All feedback systems & field sensors, limit switches, proximity switches, pressure switches, temperature controllers, should be for heavy duty application and wired up with flexible PVC insulated screened cables. All field elements shall have easy accessibility for maintenance.	Bidder to Confirm	
31.18	Air Conditioners with Dehumidifiers of suitable capacity to be provided for all Electrical / Electronic Panels / Cabinets including Operator's Panel considering specified ambient conditions. Make: Rittal / Warner & Finley. Detailed specifications to be submitted.	Bidder to Specify	
31.19	Suitable Servo Voltage stabilizer for Butt Welding Machine & Ultra isolation transformer for programmable controls shall be quoted for each machine separately.	Bidder to Confirm	

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32.0	MACHINE LIGHTS		
32.1	Machine Spot Lights and suitable fluorescent light or metal halide lamps to be provided for sufficient illumination in the welding zone and in the pit where bottom torches are mounted.	Bidder to Confirm	
32.2	All light fittings, consumables, adapters/receptacles should have compatibility with Indian equivalents	Bidder to Confirm	
33.0	MACHINE FOUNDATION:		
33.1	Bidder shall submit the preliminary layout drawing for getting BHPV's approval within one month from the date of Letter of Intent (LOI). Complete details like static and dynamic loads etc required for foundation design shall be submitted by the Bidder within three months after getting BHPV's approval.	Bidder to Confirm	
33.2	BHPV shall design and construct complete foundation for the machine as per the Bidder's recommendation	Bidder to Confirm	
33.3	Complete anchoring system including foundation bolts, anchoring materials, fixators, levelling shoes, chemical for anchoring etc should be supplied	Bidder to Specify	
34.0	MACHINE SPARES:		
34.1	List of spares with itemized break-up of mechanical, hydraulic, pneumatic, electrical and electronic spares used in the machine in sufficient quantity as per recommendation of Bidder for 2 years of trouble free operation on three shifts continuous running basis shall be furnished by Bidder along with offer. The list is to include following, in addition to other recommended spares: (Unit Price for each item of spare shall be offered)	Bidder to Confirm	
34.2	Mechanical, Hydraulic, Pneumatic Spares: All types of Pumps, Valves, Pressure Switches, Transducers, Flow Switches, Filters, Seals, O-rings, Hydraulic Hoses, hoses, bearings, sprockets, chains etc.	Bidder to Confirm	

Sl.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
34.3	Electrical / Electronic / PLC Spares: All types of Relays, Contactors, Proximity Switches, Push Buttons, Indicating Lamps, Semiconductor Fuses, Special Fuses, Circuit Breakers, Main Power Switch, Encoders, Spares for PLC, Servo Motors for Feed Drives, Power Module & Control Cards for Main Drive as well as Feed Drives etc.	Bidder to Confirm	
34.4	Welding Consumable spares such as Contact tips, Gas nozzles, Tip adapters, Other torch spares for at least 6 months continuous operation shall be provided.	Bidder to Confirm	
34.5	Spare Torches, Torch cables and Wire feed conduits, Wire feed rollers may also be offered.	Bidder to Confirm	
34.6	All types of spares for total machine and accessories shall be available for at least ten years after supply of the machine. If machine or control is likely to become obsolete in this period, the Bidder should inform BHPV sufficiently in advance and provide drawings of parts / details of spares including consumable spares such as contact tips & gas nozzles & suppliers name to enable BHPV to procure these in advance, if required	Bidder to Confirm	
34.7	Bidder to Confirm that complete list of spares including consumable spares such as contact tips & gas nozzles & suppliers name and accessories, along with item part no /specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine	Bidder to Confirm	
34.8	A set of Service Tools for dismantling and assembling of machine components such as roller sets etc. may be quoted.	Bidder to Confirm	
35.0	DOCUMENTATION:		
35.1	GA drawings, Machine detailed constructional drawings with dimensions, Civil Foundation layout drawings, Hydraulic / Pneumatic / Electrical / Electronic circuits with BOM, are to be submitted within 45 days from the date of ordering (in case of an order) for approval by BHPV. Wire drum break up dimension / diagram including details of spools and coils to be submitted.	Bidder to Confirm	

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36.0	MACHINE INSPECTION & ACCEPTANCE:		
36.1	PRE-DISPATCH INSPECTION AT SUPPLIER'S WORKS:		
36.1.1	Complete STBW stations with all sub-systems and accessories shall be assembled and offered for inspection by BHPV Engineers at supplier's works.	Bidder to Confirm	
36.1.2	All systems of the machine have to be operated and demonstrated to the BHPV Engineers in proper working condition.	Bidder to Confirm	
36.1.3	Supplier has to establish parameters for radiographic quality weld joints with the following tube specifications: a) OD 54mm x Th. 4mm / SA213 T91 with 0.8mm ER90S-B9 wire by Pulsed GMAW process. The joints are to be pre-heated before welding – 10 Joints b) OD 63.5mm x Th. 12mm / SA213 347H (110mm insert) + OD 63.5mm x Th. 12mm / SA213 T22 with 0.8mm ER Ni Cr3 wire by Pulsed GMAW process – 10 Joints	Bidder to Confirm	
36.1.4	Tubes, Welding consumables and all other consumables required for pre-dispatch testing have to be arranged by supplier.	Bidder to Confirm	
36.1.5	Supplier has to arrange for conducting Radiography test on joints and will be evaluated as per BHPV quality standards given in Annexure-I. All the joints should pass the test.	Bidder to Confirm	
36.2	PROVE-OUT AND ACCEPTANCE AT BHPV WORKS:		
36.2.1	After the machine Erection is completed and Energizing the machine at BHPV works, all systems of the machine have to be operated and demonstrated in proper working condition.	Bidder to Confirm	

Sl.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
36.2.2	<p>Quality test: The following joints have to be produced without defects as per the quality standards in Annexure-I:</p> <p>a) OD 51mm x Th. 5.6mm / SA 210 Gr. C with 0.8mm ER70S-A1 wire by Pulsed GMAW & GTAW process – 10 Joints</p> <p>b) OD 54mm x Th. 4mm / SA213 T91 with 0.8mm ER90S-B9 wire by Pulsed GMAW process. The joints are to be pre-heated before welding – 10 Joints</p> <p>c) OD 63.5mm x Th. 12mm / SA213 347H (110mm insert) + OD 63.5mm x Th. 12mm / SA213 T22 with 0.8mm ER Ni Cr3 wire by Pulsed GMAW process – 10 Joints</p>	Bidder to Confirm	
36.2.3	<p>Productivity prove out: Supplier to prove out the productivity with defect free Radiography quality weld joints, for following tubes of 10 or 12m length for one shift of 8 hours as per clause 3.1:</p> <ol style="list-style-type: none"> 100 joints/shift of OD 51mm x Th. 5.6mm / SA 210 Gr. C or Gr. A1 with 0.8mm ER70S-A1 wire by Pulsed GMAW process as well as GTAW process. (First prove out) 80 joints/shift of OD 54mm x Th. 4mm / SA213 T91 with 0.8mm ER90S-B9 wire by Pulsed GMAW process as well as GTAW process. The joints are to be pre-heated before welding. (Second prove out) 	Bidder to Confirm	
36.2.4	All consumables and tubes will be supplied by BHPV.	Bidder to Confirm	
36.2.5	Edge prepared tubes, welding consumables, gas etc will be supplied by BHPV.	Bidder to Confirm	
36.2.6	Radiography test will be conducted on joints in RTR station online with the STBW machine, and will be evaluated as per BHPV quality standards given in Annexure-I. All the joints should pass the test.	Bidder to Confirm	

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37.0	TRAINING:		
37.1	The supplier shall train TWO BHPV Engineers in Operation and Maintenance (Mechanical, Electrical/ Electronics and Programming) of the Machine for FIVE working days at supplier's works after the pre-dispatch inspection.	Bidder to Confirm	
37.2	Bidder to clearly mention whether the training is offered free of cost or chargeable. If chargeable, the Bidder has to quote on manday basis.	Bidder to Specify	
37.3	Airfare, board & lodging for the BHPV Engineers who will be visiting supplier's works for pre-dispatch inspection and training, shall be borne by BHPV.	Bidder to note	
37.4	The Supplier shall impart training to BHPV's Machine Operators and Maintenance crew in Operation and Maintenance (Mechanical, Electrical/ Electronics and PLC System) during commissioning of the Machine at BHPV works for TEN working days.	Bidder to Confirm	
37.5	<p>The training shall include specialized coaching in</p> <ul style="list-style-type: none"> i. Safety ii. Operation of the machine iii. PC based System & Operation, iv. Trouble-Shooting, v. Software Application vi. All special features of the machine vii. Electrical / Mechanical / Electronics systems 	Bidder to Confirm	
37.6	Competent, English speaking experts shall be arranged by the Bidder during training for satisfactory & effective training of BHPV personnel	Bidder to Confirm	
38.0	ERECTION & COMMISSIONING		
38.1	Supplier to take full responsibility for Supervision of the erection and for start up, testing and commissioning of machine, its controls and accessories. Supplier shall send suitable qualified Engineers for supervision of Erection and Commissioning of the machine at BHPV works. Commissioning Engineers who will be deputed to BHPV shall be English speaking or English interpreters have to be arranged by the supplier for the entire duration from start of erection till the machines are commissioned and handed over to BHPV with complete training.	Bidder to Confirm	

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38.2	Service requirement like power, air & water shall be provided by BHPV at only one point to be indicated by Bidder in their foundation/layout drawings. Other requirements like crane and helping personnel shall also be provided by BHPV.	Bidder to Confirm	
38.3	Successful proving of BHPV components by the Bidder shall be considered as part of commissioning. All tests, as mentioned (Machine Acceptance) shall form part of the commissioning activity.	Bidder to Confirm	
38.4	Commissioning spares, required for commissioning of the machine shall be supplied free of cost	Bidder to Confirm	
38.5	Test Mandrels, Instruments and other necessary equipment including Laser equipment, if required, to carry out all above activities should be brought by the Bidder.	Bidder to Confirm	
38.6	Portion, if any, of the machine, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the Bidder. For this purpose, the Bidder should supply sufficient quantity of touch-up paint of various colours of paint used.	Bidder to Confirm	
39.0	IN-BUILT SAFETY ARRANGEMENTS		
39.1	Following safety features in addition to other standard safety features should be provided on the machine:		
39.2	STBW Machine shall have Safety Guards / Sliding Doors for protection against the welding arc / splash / flashing for the Machine Operators. Safety Doors to have visible glasses for clear vision also. Bidder to submit details on this arrangement offered.	Bidder to Specify	
39.3	A detailed list of all alarms / indications provided on machine should be submitted by the Bidder.	Bidder to Specify	
39.4	All the pipes, cables etc. on the machine should be well supported and protected. These should not create any hindrance to machine operator's movement for effective use of machine.	Bidder to Confirm	
39.5	Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes.	Bidder to Specify	

SI.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
39.6	Machine functions should be continuously monitored and alarm / warning indications through lights/ alarm number with messages (on the display and operator panels) should be available.	Bidder to Confirm	
39.7	All the rotating parts used on machine should be statically & dynamically balanced to avoid undue vibrations and suitably guarded.	Bidder to Confirm	
39.8	Emergency Switches should be provided at suitable locations as per International Norms.	Bidder to Confirm	
39.9	All lubricated parts like Bed, guide ways shall have provision for collecting the used Lubrication oil from machine guide ways and preventing them from spilling over on to the ground.	Bidder to Confirm	
40.0	THERMAL STABILITY FOR AMBIENT CONDITIONS & ENVIRONMENTAL PERFORMANCE OF THE MACHINE:		
40.1	The machine shall be suitable for an ambient temperature of +45 deg C and relative humidity of 90% respectively, but both do not occur simultaneously.	Bidder to Confirm	
40.2	The Bidder should ensure trouble free operation of the machine with Thermal Stability of the complete machine and accuracy requirements of BHPV components, keeping in view of ambient conditions as mentioned above.	Bidder to Confirm	
40.3	The machine, including sub-systems, attachments and accessories, should be suitable for continuous operation on three shifts a day.	Bidder to Confirm	
40.4	If any safety / environmental protection enclosure is required it shall be built in the machine by the Bidder.	Bidder to Confirm	
40.5	Paint of the machine should be oil / coolant resistant and should not peel off	Bidder to Confirm	
40.6	Maximum noise level shall be 85 dB(A) at normal load condition..	Bidder to Confirm	
41.0	PAINTING:		
41.1	Painting of entire Machine / Electrical Panels: RAL 6011 Apple Green (Polyurethane Paint) Heat resistant paint on the inside of the machine in the welding zone.	Bidder to Confirm	

Sl.No	PARTICULARS	SPECIFICATION / DESCRIPTION	BIDDER'S OFFER (WITH CONFIRMATION & COMPLETE TECHNICAL DETAILS)
42.0	MACHINE PACKING:		
42.1	Sea worthy & rigid packing for all items of complete machine, PLC System, all accessories and other supplied items to avoid any damage/loss in transit. When machine is dispatched in containers, all small loose items shall be suitably packed in boxes	Bidder to Confirm	
43.0	GUARANTEE:		
43.1	Performance Guarantee to be given for 12 months from the date of commissioning OR 18 months from the date of dispatch whichever is earlier.	Bidder to Confirm	
44.0	GENERAL:		
44.1	Machine Model No.	Bidder to Specify	
44.2	Total connected load (KVA):	Bidder to Specify	
44.3	Total air volume in cu.m/min	Bidder to Specify	
44.4	Floor area required (Length, Width, Height) for complete machine & accessories	Bidder to Specify	
44.5	Total weight of the machine (approx)	Bidder to Specify	
44.6	The general arrangement drawing showing the machine & associated systems with salient dimensions shall be submitted along with the offer. The drawing should be clear and legible	Bidder to provide compulsorily	

COMMERCIAL TERMS AND CONDITIONS FOR SUBMISSION OF OFFER**1.0 QUOTATIONS**

Bidders shall submit the offer in TWO INNER ENVELOPES as indicated below which shall be sealed in one outer envelope.

Envelope I: This sealed envelope should contain all the copies of technical bid together with un-priced commercial bid. This envelope should be clearly marked “**Part I – Technical and Un-priced commercial bid**” Indicating Tender No., Due Date and Address & Reference of the Bidder.

Envelope II: This sealed envelope should contain price details this envelope should be clearly marked “**Part II - Price bid**” indicating Tender No., Due Date and Address & Reference of the Bidder.

Both the envelopes (Part I & II) shall be put in one cover, duly sealed, super scribing as Part I and Part II of Tender No., due date of opening and the address and reference of the Bidder

The above offer should reach this office on or before the due date by 14.00 Hrs (IST)
Tender should not be addressed to any Individuals name but only designation to

Dy. General Manager (MM)
BHARAT HEAVY PLATE & VESSELS LIMITED
VISAKHAPATNAM - 530 012 (A P), INDIA.

Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in ENGLISH and accompanied by technical literature catalogue and detailed dimensional drawings in ENGLISH or otherwise the offers will not be considered.

2.0 PART I (TECHNICAL & UN-PRICED COMMERCIAL BID)**2.1 Technical**

This part shall include / indicate the following:

- 2.1.1. Offer should contain complete scope of supply with all technical details, specifications, delivery and other commercial terms and conditions.
- 2.1.2. Point by point confirmation for the Technical Specification enclosed is to be provided. If there are any deviations the same should be clearly specified. Offers received without conformation to our specification will be rejected.
- 2.1.3. List of customers to whom same or similar equipment have been supplied along with performance certificates to be enclosed.
- 2.1.4. Relevant catalogue to be attached.
- 2.1.5. List of spares parts (with part numbers) for two years operation and maintenance should be attached.

2.1.6. Information on shipping weight and cubage (length, width & height) to be provided

2.1.7. In case of foreign bidder offer, the Principal's technical offer only should be enclosed.

2.2 Un-Priced Commercial

This part shall include / indicate the following

2.2.1. Port of shipment / Station of dispatch

2.2.2. Terms of payment

2.2.3. FOB/FCA price along with freight charges up to Chennai port (for foreign bidders) Ex-works/FOR Dispatch Station price along with freight charges up to BHPV Visakhapatnam (for Indian bidders)

2.2.4. Taxes, Service tax & duties including Cess applicable.

2.2.5 Delivery Schedule

2.2.6. Filled-in check list to be enclosed

2.2.7. Offer validity

2.2.8. Country of origin

2.2.9. Percentage of agency commission if any along with a copy of Agency agreement The FOB/FCA/CFR Prices quoted shall include the agency commission.

2.2.10. A copy of "Un-Priced Part II 'i.e., a copy of the Price Bid without the price details to be enclosed.

2.2.11 BHPV is eligible for availing CENVAT / VAT credit on both inputs and capital inputs. The suppliers invoice should separately indicate the amount of duty / taxes and should invariably mention the following details:

1. The Central excise registration number, range division and commission rate of the supplier's jurisdiction.
2. The rate of duty and 8 digit central excise tariff heading of the item supplied.
3. The TIN, VAT, CST registration number of the supplier.

The duplicate copy of the invoice is required for availing CENVAT credit and original copy for availing VAT credit, if purchased within the state.

In case of foreign bidders the duplicate copy of the electronic Bill of Entry along with TR6 challan should be made available for availing CENVAT credit on CVD, Cess (S) and SAD.

3.0 **PART II (PRICE –BID)**

This part should contain the schedule of price particulars and to be co-related to the technical details provided in Part-I

4.0 **OPENING OF TENDERS**

The Part I – Technical & un-priced commercial bid alone would be opened on the Tender opening date.

The Part II – Price bid of technically suitable Bidders alone would be opened. The Technically suitable Bidders would be informed about the Price Bid opening date. Clarifications if any required by BHPV FOR Technical evaluation / commercial evaluation would be sought from Bidders before opening of Part II – price bid.

GENERAL

5.1 Incomplete offers will not be considered.

5.2 **Fixed priced:** Prices quoted by the bidder shall be fixed and not subject to any escalation whatsoever during the period of bid validity and execution of the Purchase Order A bid submitted with an adjustable price will be treated as non- responsive and rejected Prices shall be written in words and figures. In the event of difference, the price in words shall be valid and binding. Unit prices shall be considered correct in the event of any discrepancy with regards to total price.

5.3 **Bid currency:** Indian bidders should submit the prices only in Indian Rupees. Foreign bidders may submit their bid in their home currency, which should be clearly indicated in the un-priced commercial bid as well as in the price bid.

- 5.4 **Terms of Delivery:** Bidders are required to quote their best delivery period. Foreign Bidders should submit their offer for net FOB/ FCA – Nearest Sea Port / Air Port as well as CFR / Chennai Seaport/ Airport. Freight charges up to Chennai port to be indicated separately. Indian Bidders should submit their offer for Dispatching station as well as FOR BHPV Visakhapatnam basis. Freight charges from works to BHPV Visakhapatnam to be indicated separately. Delivery from the date of Letter of Intent to be mentioned in the offer.
- 5.5 **Taxes and Duties:** All Taxes and Duties payable as extra to the quoted price should be specifically stated in offers along with CST & TIN No/ Tariff No. etc, failing which the purchaser will not be liable for payment of such Taxes and Duties (Our TIN No.28280189432, APGST No. VSP/04/1/1023 dated 24.08.1968. CST No.VSP/04/1/1012 dated 24.08.1968 & BHPV ECC No AAA CB 7076 N-XM001. Assessment circle Visakhapatnam.)
- 5.6 **Validity:** The offers for main equipment and spares shall be kept open for acceptance for a period of 120 days (one hundred and twenty days) from the dates of opening of the tender (part I)
- 5.7 **Terms of Payment:**
- 5.7.1 **Indian Bidders:**
- 5.7.1.1 90% payment (90% of basic price + 100% Taxes) will be made within 45 days of receipt of material and balance 10% will be made after acceptance of material/commissioning of the equipment at BHPV, Visakhapatnam and on submission of Performance Bank Guarantee.
- 5.7.2 **Foreign Bidders**
An Irrevocable letter of Credit shall be established for 80% of FOB/FCA/CFR/ (excluding Indian Agent's commission) 2 months prior to shipment and valid for 3 months for negotiation against shipment Letter of Credit shall be opened through a branch of State Bank of India in the country where order shall be placed. In case, in the country where order is placed, State Bank of India is not there, Letter of Credit will be confirmed by foreign banker. Balance 20% of FOB/FCA/CFR value shall be paid through sight draft on Commissioning & acceptance of the equipment at BHPV Visakhapatnam, against submission of 10% performance bank guarantee. All Bank charges outside India are to supplier's account. Lump sum erection and commissioning charges if any, shall be payable after satisfactory erection & commissioning of the equipment by sight draft against certificate issued by the competent authority.
- 5.7.3 **Common to both India & Foreign Bidders.**
Erection & Commissioning (E&C) charges will be released after deduction of Income Taxes as per the Govt. of India rules. The TDS certificate will be issued by BHPV. Applicable service tax on E&C charges will be payable extra. The liability of depositing the same to the Govt. will be of the supplier.
- 5.7.4 **Loading criteria common to both Indian and foreign bidders:** Vendor should accept the payment terms specified above. However for any deviation to the payment terms offered with reference to the above criterion will be loaded with prime lending rate of SBI prevailing on date of opening of price bid + 2%, which shall be computed for the differential period between BHPV terms of payment and the offered basic price.
- 5.8 DUNS number (allotted by M/s. DUN & Bradstreet) shall be mentioned in your offer.
- 5.9 **Guarantee:** The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier.
Offers from vendors not accepting to the requested guarantee period will be rejected.

5.10 **Contract Execution Bank Guarantee (CEBG):** The successful tenderer shall furnish a Bank Guarantee from any Nationalized Bank for 5% of Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – excluding freight & insurance – for foreign bidders) confirming that the order will be executed as per the terms and conditions and this should be valid till final dispatch date (LR/GR/BL/AWB) with additional 2 months claim period. Letter of Credit will be processed only after receipt of CEBG. The CEBG is to be furnished within 3 weeks from the date of Purchase order.

Offers from vendors not accepting to submit CEBG will be rejected.

5.11 **Performance Bank Guarantee (PBG):** The supplier shall furnish a Bank guarantee from any Indian Nationalized Bank approved by BHPV in the format, given by BHPV along with purchase order for 10% of the Purchase Order value (FOR Dispatching station value – Excluding taxes, duties, freight & insurance – for Indian bidders) & (FOB/FCA value – excluding freight & insurance – for foreign bidders) valid for period of guarantee with additional claim period of 2 months.

Offers from vendors not accepting to submit PBG will be rejected.

The CEBG & PBG shall be obtained from any Indian Nationalized Bank

5.12 **Liquidated damages:** Delivery of the goods specified in the purchase order should be made within the time prescribed. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order would make the supplier liable to an un-conditional penalty at the rate of ½% of the value of goods for each week of delay subject to a maximum of 10% of the Purchase Order value.

5.12.1 **Loading Criteria for Liquidated Damages:** Any deviation from above LD Clause to the extent for which LD is not agreed by the vendor i.e., differential % value will be loaded on basic price, e.g. If some vendor agrees for say maximum of 6% LD then his price will be loaded by 4% (10 – 6) of his quoted basic price.

5.13 **Risk purchase:** If the supplier fails to deliver the goods within the delivery specified in the Purchase Order, BHPV will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the delivery period mentioned in the Purchase Order.

Offers from vendors not accepting the above Risk Purchase terms will be rejected.

5.14 **Indian Agent & Agency commission:** An Indian Agent can represent only one Foreign Manufacturer against a particular Tender. The FOB/FCA/CFR price quoted by the Foreign bidder shall include the agency commission. However, the agency commission component payable to their Indian Agents shall be shown separately in the offer. This will be paid by BHPV in India Rupees, on satisfactory commissioning & acceptance of the equipment. Copies of current Agency Agreement / Authorization Letter in respect of Agency Commission shall be furnished along with offer. For calculation of Rupee equivalent of Agency Commission exchange rate as prevailing on the date of Purchase Order will be taken.

5.15 **Short shipment / Warranty replacement:** In case of any short shipment in the main equipment / spares, customs duty levied on such supplies, shall be borne by the supplier. Any warranty replacement during the warrantee period shall be on FOR, BHPV - Visakhapatnam, basis.

- 5.16 **Inspection & Testing:** All goods shall be subject to inspection by BHPV or its authorized representatives at supplier's works or at BHPV stores. The supplier will not charge for the facilities provided for inspection of goods. In case of machine tools the machine would be inspected and proved at supplier's works prior to dispatch however, final inspection and acceptance of the machine will be carried after installation of the machine at BHPV, Visakhapatnam.
- 5.17 **Operating and Maintenance manuals:** The Bidders shall clearly mention in their offer that Operating Maintenance Manuals as called for in the Technical Specification in the required number of copies will be provided.
- 5.18 **Cenvat & VAT credit. (for Indian Bidders only):** The quotation must indicate Tariff item number and rate of Excise Duty applicable. The original Excise Duty Gate Pass will be required to be furnished in case charges to us. If the bidder is availing Cenvat credit for his input materials, the effect of proforma credit should be passed on to the purchaser.
- 5.19 **Packing:** The Supplier shall arrange for packing suitably in all respects considering the peculiarity of the material involves for normal transport by sea / air / rail road and suitably protected against effect of tropical salt laden atmosphere in the event of shipment being delayed at ports.
- 5.20 **Salient Points of HSE** (Health, Safety & Environment) that are to be considered while submissions of offer are:
- 5.20.1 Consumption benchmarks related to output shall be provided wherever applicable for key input resources (energy/fuels/chemicals)
- 5.20.2 Competency requirements for operation, maintenance and calibration, if any, shall be communicated
- 5.20.3 If any Hazardous chemicals as per MSIHC (Manufacturing, Storage and import of Hazardous Chemicals) Rules 1989/94/2000 are used, the MSDS shall be provided, along with on site & OFF site emergency plan (as applicable).
- 5.20.4 The noise level at operator level shall be within 90 Dba
- 5.20.5 OH&S (Occupational Health and Safety) control measures for safe working of machine as applicable shall be specified
- 5.20.6 The machine/equipment shall be fitted with guard for rolling and moving parts and shall comply with applicable OH&S legislations and Factories Act 1948
- 5.20.7 The supplier shall submit the layout drawing of operating controls, displays etc and operating instructions to enable ergonomics evaluation and approval
- 5.20.8 The recommended PPE (Personal Protective Equipment) for the equipment shall be furnished
- 5.20.9 Alarm System (both visual and audible) and Automatic switch off of the equipment shall be provided for any intrusion, overloading, short circuiting or any malfunctioning of the equipment.
- 5.20.10 Details of all hazardous / harmful substances discharges as by-products / wastes during operations of the machine / equipment, such as fumes, gases, dust particles, aerosols UV./IR (Ultra violet / Infra red) radiations, etc shall be furnished, along with their concentrations and their TLV, (Threshold Limit Value)

- 5.20.11 Appropriate pollution control measures shall be proposed to keep the emissions from the machinery / processes within the prescribed limit as stated in Environment Protection Rules 1986.
- 5.20.12 All furnaces, process units, DG sets, paint booths, shot blasting chambers, etc shall be provided with stack(s) of sufficient height as per guidelines laid down in the Environment Protection Rules 1986.
- 5.20.13 wherever industry specific standards are not available for control of pollutants, general emission standards shall be used
- 5.20.14 Chemicals banned due to their negative impact on the environment shall not be used on the process
- 5.20.15 Fuels with sulphur content less than 0.05% shall be proposed.
- 5.20.16 Details regarding nature of waste generated and appropriate disposal practices available shall be provided, along with the operation procedure of the plant / process.
- 5.20.17 Hazardous chemicals and flammable substances shall be transported only through authorized transporters and all safety practices as laid down in applicable legislative requirements such as Central Motor Vehicle Rules, Manufacture, Storage and Import of Hazardous Chemical 1989, etc. shall be followed.
- 5.20.18 Primary materials used in the equipment shall be specified and they shall be eco - friendly.
- 5.21 Evaluation of offers shall be on the basis of delivered cost (Net cash outflow to BHPV).
- 5.22 BHPV also reserves its right to allow to the Public Sector Enterprises ordering and price preference facilities as admissible under the existing policy.
- 5.23 BHPV reserves its right to reject a tender due to unsatisfactory past performance in the execution of a contract at another project / unit.
- 5.24 BHPV shall be at liberty to reject or accept any tender, part or in full, at their own discretion and any such action is not liable for any question or claim against BHPV.
- 5.25 BHPV reserves the right to go for a Reverse Auction (RA) instead of opening the submitted sealed bid, which will be decided after technical evaluation. Information and general terms and conditions governing RA are given below.

GENERAL TERMS AND CONDITIONS OF RA (REVERSE AUCTION)

Against this enquiry for the subject item/system with detailed scope of supply as per enquiry specifications. BHPV may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING ON INTERNET.

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. BHPV will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
3. BHPV will inform the vendor in writing in case of reverse auction, the details of service provider to enable them to contact & get trained.

4. Business rules like event date, time, start price, bid decrement, extensions etc. also will be communicated through service provider for compliance.
 5. Vendors have to fax the Compliance form in the prescribed format (provided by Service provider) before start of Reverse auction. Without this, the vendor will not be eligible to participate in the event.
 6. BHPV will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHPV like Packing & Forwarding charges, taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHPV standard Commercial terms & conditions) for each of the vendor to enable them to fill-in the price and keep it ready for keying in during the Auction.
 7. Reverse auction will be conducted on scheduled date & time.
 8. At the end of Reverse Auction event, the lowest bidder value will be known on the network.
 9. The lowest bidder has to Fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHPV through Service provider within 24 hours of Auction without fail.
 10. Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHPV as per prevailing procedure.
 11. In case BHPV decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHPV shall be opened as per BHPV’s standard practice.
- 5.26 **Force Majeure clause:** If at the time during the continuance of this contract the performance in whole or in part by either party of any obligations under this contract shall be prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, explosions epidemics, quarantine, restrictions or acts of GOD (hereinafter referred to as events) then provided notice of happening of any such events is given by either party to other within twenty one days from the date of occurrence thereof neither party shall reason of such events be entitled to terminate this contract nor shall either party have any such non performance and delay is resumed as soon as practicable after such events has come to an end or ceased to exist, if the performance in whole or part of any obligation under this contract is prevented or delayed by reason or any such event claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser of the particulars of the events and supply to the purchaser if required of any supporting evidence. Any waiver of time in respect of partial installment shall not be deemed to be a waiver of time in respect of remaining deliveries.

CHECK LIST

Bidder's acceptance to BHPV's Standard Commercial Terms & Conditions.

Applicable for Indian bidders

(To be submitted along with the offer – please do not change the format)

BHPV Tender No: & Date:	Bidders Confirmation / response
Technical Confirmation to BHPV's Specification	Furnished /Not Furnished
Prices have been quoted on "FIRM PRICE" basis only.	Yes / No
Prices have been quoted on "F.O.R BHPV" basis only.	Yes / No
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – please Specify)	
Sales Tax (please Specify)	
Excise Duty (please Specify)	
Delivery period from the date of Purchase Order (please Specify). A loading @ ½ % of the Purchase Order value per week will be done for the grace period requested. For evaluation 4 weeks will be considered as one month. Vendors quoting a delivery period beyond the 'the requested delivery plus the allowed grace period' is liable for rejection.	
Liquidated damages as per clause 5.12 (we require acceptance to @ ½% per week subject to a maximum of 10%).	
Risk Purchase as per clause 5.13 (Offers from vendors not accepting the Risk Purchase terms will be rejected)	Yes / No
Payment terms : 90% payment will be made within 45 days of receipt of material and balance 10% will be made after acceptance of material/commissioning of the equipment at BHPV Visakhapatnam and on submission of Performance Bank Guarantee.	
Contract Execution Bank Guarantee (CEBG) as per Clause 5.10 (Offers from vendors not accepting to submit CEBG will be rejected)	Yes / No
Performance Bank Guarantee (PBG) as per Clause 5.11 (Offers from vendors not accepting to submit PBG will be rejected)	Yes / No
Guarantee as per clause 5.9 (The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier). (Offers from vendors not accepting to the requested guarantee period will be rejected)	Yes / No
Approximate Net Weight of the total Consignment	
Approximate Gross Weight of the total Consignment	

Signature & Office Seal of the bidder

CHECK LIST

Bidder's acceptance to BHPV's Standard Commercial Terms & Conditions.

Applicable for foreign bidders (To be submitted along with the offer – please do not change the format)

BHPV Tender No: & Date:	Bidders Confirmation / response
Technical Confirmation to BHPV's Specification	Furnished / Not Furnished
Prices have been quoted on "FIRM PRICE" basis only.	Yes / No
Prices have been quoted on "F.O.R BHPV" basis only.	Yes / No
Validity of offer (we require a minimum period of 120 days from the date of Tender Opening – please Specify)	
Currency in which quoted (please Specify)	
Port of loading (please Specify)	
Country of Origin (please Specify)	
Sales Tax (please Specify)	
Excise Tax (please Specify)	
Delivery period from the date of Letter of Intent (please Specify)	
Liquidated damages as per clause 5.12 (we require acceptance to @ ½% per week subject to a maximum of 10%)	
Risk Purchase as per clause 5.13 (Offers from vendors not accepting the Risk Purchase terms will be rejected)	Yes / No
Payment terms (An irrevocable Letter of Credit shall be established for 80% of FOB/FCA/CFR (excluding Indian Agent's Commission) 2 months prior to shipment and valid for 3 months for negotiation against shipment. Letter of Credit shall be Opened through a branch of State Bank of India in the country where Order shall be Placed. In case, in the Country where order is placed State Bank of India is not there, Letter of credit will be opened through our bankers or as permitted by Government of India. Letter of Credit will not be confirmed by foreign banker. Balance 20% of FOB/FCA/CFR value shall be paid through sight draft on Commissioning. & acceptance of the equipment at BHPV, Visakhapatnam against submission of 10% performance Bank Guarantee. All Bank charges outside India are to Supplier's account. Lump sum erection and Commissioning charges, if any shall be payable after satisfactory erection and Commissioning of the Equipment by sight draft against Certificate issued by the competent authority as per clause 5.7.2)	
Agency commission (refer clause 5.14)	Acceptable / Not acceptable
Contract Execution Bank Guarantee (CEPG) as per Clause 5.10 (Offers from vendors not accepting to submit CEBG will be rejected)	Yes / No
Performance Bank Guarantee (PBG) as per Clause 5.11 (Offers from vendors not accepting to submit PBG will be rejected)	Yes / No
Guarantee as per clause 5.9 (The equipment shall be guaranteed for a period of 18 months from the date of supply or 12 months from the date of commissioning and acceptance whichever is earlier). (Offers from vendors not accepting to the requested guarantee period will be rejected)	Yes / No
Approximate Net Weight of the total Consignment	
Approximate Gross Weight of the total Consignment	

Signature & Office Seal of the bidder